

1	Title of research		Development of scintillator-based detection system for laser-accelerated GeV proton
2	List of Participants (Name and affiliation)		Yuji Fukuda (Kansai Photon Science Institute, QST)
			Yasuhiro Kuramitsu (Graduate School of Engineering, Osaka University)
			Atsushi Tokiyasu (ELPH, Tohoku University)
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3	Period of research		June 2020 to March 2022
4	Main location of collaboration implementation		Kansai Photon Science Institute, QST
5	Publication list (Please include DOI if available)	Articles	
		Talks	Title 'Detection of high energy particles in nuclear physics experiments ' 13pB1-9 Speaker : Hideki Kohri Conference : JPS meeting held on the 13th of March in 2021
			Title 'Astrophysics and laser-accelerated ions' 13pB1-2 Speaker : Yasuhiro Kuramitsu Conference : JPS meeting held on the 13th of March in 2021
Theses			
6	Description of the results and outputs		<p>Our research subject is laser driven ion acceleration. Techniques used in nuclear physics experiments are quite useful for identifying particles and measuring energies of them.</p> <p>We carried out an experiment using proton beams with energies of 100 and 230 MeV at HIMAC in September 2020. Energy measurements with a good linearity were performed by using a calorimeter and a reasonable time resolution of 240 ps was obtained for TOF using two plastic scintillators.</p> <p>We installed the same detectors in the J-KAREN experiment at Kansai Photon Science Institute in November 2020. However, huge electron background disturbed precise measurements.</p> <p>Kuramitsu and Kohri reported these results in the JPS meeting held in March 2021, and Tokiyasu will report in the HEDS international conference to be held in April 2021.</p> <p>After replacing the plastic scintillators with smaller ones and making thicker shields, we will try to measure the energies of laser-accelerated ions in 2021 or 2022.</p>